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BUYING FARM LAND

o Land Value Trends And Future Prospects

o Is The Asking Price Reasonable?

o What's It Worth To You?

o Can You Handle Debt Payment And Risk?

by

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I. Minnesota Farm Land Value Trends And Future Prospects

A. Minnesota Farm Land Values - An Historical Perspective

1. Major Patterns Of Minnesota Land Values

a. 1910-1920 - Land values up 250% -- $41 to $104
b. 1920-1934 - Values dropped 62% -- Back to $40
c. 1934-1972 - Increased every year except 3 -- to $248
d. 1972-1981 - Explosive increase of $118 per year -- to $1,310
e. 1981-1987 - Dropped 63% to $480
f. 1987- - Some increase in land values
(USDA Agricultural Resources Report reported a 14% increase from Feb. 1, 1987 to Feb. 1, 1988 for average quality land in Minnesota)

2. Recent Variations In Land Values Within The State

Table 1. **Estimated Average Value Per Acre of Minnesota Farm Land by District,1972 - 1987.**[1]

Year	South-East	South-West	West Central	East Central	North-West	North-East	State Average
1972	370	379	208	163	117	76	248
1973	433	459	247	194	146	115	298
1974	576	675	378	279	199	144	423
1975	674	844	503	296	295	163	525
1976	856	1106	624	349	378	210	667
1977	1027	1316	730	415	427	279	794
1978	1191	1421	803	498	483	304	889
1979	1453	1620	883	573	599	368	1040
1980	1526	1750	962	596	683	390	1120
1981	1709	2083	1135	679	813	460	1310
1982	1504	1875	1044	584	748	483	1179
1983	1354	1669	981	561	658	411	1065
1984	1164	1401	873	505	586	436	927
1985	861	967	690	374	510	362	686
1986	603	696	511	296	418	308	515
1987	558	671	472	259	375	293	480
% Change							
1986-87	-7	-4	-8	-12	-10	-8	-7
1981-87	-67	-68	-58	-62	-54	-39[2]	-63

[1] Source: The Minnesota Rural Real Estate Market in 1987, Minnesota Agricultural Economist No. 655, February 1988

[2] 1982-87

3. Who Is Buying Farm Land And How? - 1987
   a. Who is buying?
      - Expansion buyer - 74% of sales
      - Balance split equally between sole tract and investor buyers

   b. How is land being bought?
      - 40% Cash sales
      - 38% Contract for deed
      - 22% Mortgage

B. Future Prospects For Minnesota Farm Land Values

1. Factors Affecting Land Values

   a. Physical Factors
      - Topography - affects land use, machine size
      - Soils - affect yield level and yield variations and impact of new technology
      - Buildings and Improvements - type and condition of buildings and type of farming in area affect value

   b. Locational/Aesthetic Factors
      - Climate - rainfall and growing season affect crops grown and yields
      - Location relative to markets, population centers, urban influences affect prices and costs and demand for land
      - Visual appeal of house, out buildings, scenic view, etc. can affect value

   c. Economic and Psychological Factors
      - Expected Farm Earnings
        . Physical and locational factors affect earnings from one farm to the next, one area of state to the other
        . Earnings of given piece of land varies over time because of improvements in technology and management; because of changes in prices of products produced and costs of production
        . The higher and more stable the earnings the higher will be land values
      - Inflation Rates
        . Earnings "dividend" = permits you to pay off fixed debt with cheaper dollars
        . Growth "dividend" = during inflationary times land values tend to increase faster than inflation - but you can't buy groceries or pay debt with growth dividend until property is sold
        . Higher the inflation rate the higher land values will likely go
      - Interest Rates
        . "Real" interest rate = market rate - inflation (normally 4 - 5%)
        . During the late '70's had negative real interest rate as inflation was higher than market interest rate
        . Present real rate is higher than normal because of high risk premiums of lenders
        . The higher the real rate of interest the lower land values.

- Market Psychology
  - . Land price trends tend to translate into expectations
  - . When market moves up, price is expected to continue up (as during late '70's)
  - . When market falls, price is expected to continue down (as it did during mid-'80's)

Table 2. **Combined Effect Of These Factors On Land Values, South Central Minnesota, Selected Years - An Illustration**

			1988	
	1972	1980	Low Inflation	Moderate Inflation
Market interest rate	9%	12%	11%	12%
Less annual increase in earnings				
. from technology	2	3	2	2
. from inflation	1	6	3	6
Equals capitalization rate	6%	3%	6%	4%
Expected earnings (current $)	$40	$100	$80	$100
Divided by cap rate	0.06	0.03	0.06	0.04
Resultant Land Value	$665	$3,330	$1,330	$2,500

2. Likely Future Course Of Land Values

   a. Land values have been on the increase the past year or so. Recent drought problems will likely dampen land values in some areas while in other areas good yields and crop prices will place a strong under-tone to the market. With 40% of the sales going to cash buyers, there is reduced concern on the part of these buyers as to whether a purchase will cash flow in the short-run.

   b. In the long run, farm earnings will likely improve but also be more variable. Technology gains would suggest a modest increase in land values over time, though concerns with the environment may limit it's use and impact. Uncertainties relative to export markets and government programs would suggest fluctuations in prices and earnings, thus the need to use conservative estimates of farm earnings when making projections.

   c. Interest rates will likely continue to fluctuate as will inflation.

   d. Thus, it is expected that land values will tend to increase over time, though there may be periods of stability and even modest decline. Of course, if we return to a period of double-digit inflation, all bets are off. But, hopefully, we have learned something from the recent run-up and crash in land values.

   e. Differences in values between high and low quality land will likely widen over time. Technology and the current emphasis on the environment and conservation will be important causal factors.

II. Is The Asking Price Reasonable?

A. The Market Approach: Comparing Asking Price Of Subject Farm/Parcel With Comparable Sales In Area.

1. Select comparable sales carefully - bona fide sale - arms length transactions

2. Make proper adjustment for differences between subject farm and comparables:
   - Time of sale - what has happened to land values since comparable sale was made?
   - Size of farm - impact varies by area of state
   - Productivity
   - Buildings and improvements
   - Location
   - Size of downpayment; loan terms

B. Earnings Approach

1. What are expected earnings of typical buyer? (1) $_____
2. What is a reasonable capitalization rate? (eg 5% = 0.05) (2) 0.0 —
3. What is the resultant capitalized value of the farm? (1 ÷ 2) (3) $_____
   (You can use Worksheet I to make these calculations)

C. Summary: Is The Asking Price Reasonable?

1. How does asking price compare with comparables?
2. Is the market approach value considerably higher than the capitalized earnings value? If so, be cautious - the farm appears to be over priced.
3. You may want to hire an appraiser to make such an evaluation. This is particularly desirable if you are buying land outside of your immediate area.

III. What's This Farm/Parcel Worth To You As An Investment?

A. Factors Affecting What A Farm/Parcel Would Be Worth To You:

1. Expected annual net returns to land
2. Expected capital gains - appreciation
3. Desired return on investment
4. Financing terms and tax position
5. Length of planning horizon
6. Other factors: desire to control land, proximity to home farm, etc.

B. Determining Farm's/Parcel's Worth: Cash Rent Approach

1. Expected net return per acre?
   (cash rent/acre - landlord expenses)[1] (1) $_____
2. Nominal Interest Rate
   (rate expected during next decade) (2) _____
3. Annual % increase in earnings
   - From technology _____%
   - From inflation _____% (3) Total _____%
4. Capitalization Rate (2 - 3) (4) _____%
5. Capitalization rate expressed as decimal(eg 5% = 0.05) (5) 0.0 __
6. What is this farm/parcel worth to you?[1] (1 ÷ 5) (6) $_____

C. Determining Farm's/Parcel's Worth: Detailed Earnings Approach

Worksheet I, page 8 is designed to aid you in determining how much the farm or parcel you are considering buying is worth to you. The following is a brief description of how to complete the form.

1. First, estimate the gross income expected from crops. List crops and acres of each to be grown. For farm operator-buyers, yields should reflect your long-term expectations with your level of management. Investor-buyers should assume typical or average yields. Prices should represent a conservative estimate of your long-term expectations. Calculate the expected gross income at line A.

2. Direct costs should represent the amount of inputs needed to produce projected yields. Related expenses should reflect a long-term situation. An adequate allowance for machinery replacement and for labor and management should be included. Subtract these projected costs (line D) from the projected gross income (line A) to arrive at a projected return to land (line E). Divide this amount by the total crop acres involved to arrive at a residual return per crop acre (line F).

3. Select a capitalization rate that reflects your desired rate of return (line G). Remember that returns to land tend to be lower than rates on savings accounts since an additional "growth dividend" is expected due to inflation and technology effects. A "cap rate" of 4-5% is typical in low risk areas and where competition for land is high. It ranges from 5-6% in higher risk areas and where competition is less.

4. Divide the residual return per crop acre (line F) by the cap rate (line G) to determine the projected value per crop acre (line H). Since you are attempting to project earnings on a long term basis, there is always a considerable margin for error. With line I, determine the projected value of each crop acre, using first a projection of higher residual earnings per crop acre (compared with line F) and possibly a lower cap rate (compared with line G). Then make a similar projection using a more pessimistic outlook, that is, lowered residual earnings and a higher cap rate.

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[1]Caution: Cash rents have been running high relative to land values in recent years. Therefore, the above calculated value (line 5) is likely to be high for your situation.

5. The final step is designed to aid you in deciding whether the asking price for the farm or parcel represents a good investment for you. First, decide on an estimated value per acre of cropland, using the projected values at lines H and I as a guide. Multiply the selected amount by the total crop acres involved to arrive at the estimated value of total crop land (line J). Next, make adjustments for location, buildings, etc - their value to the farm or parcel (line K). Add lines J and K to determine the projected value of the farm or parcel to you (line L). Then compare line L with the current asking price (line M) to, determine whether this would be a good long term investment for you (line N).

IV. Can You Handle Debt Payments And Risks?

If the farm appears to be a good investment for you (Worksheet I), two questions remain: (1) can you afford to bid that much and still meet debt repayment demands? and (2) Can you handle the financial and personal risks involved?

A. Can You Meet Debt Repayment Demands? - Worksheet II (Page 9)

1. First estimate the annual net cash flows from this parcel of land. Bring the projected residual return to land total over from worksheet I. (To determine the projected residual return, multiply the estimated residual return per crop acre used in determining the projected value at line J by the total crop acres.) To this add any rent of buildings, pasture land, etc. that will be available annually if you buy this farm or parcel.

2. Next, calculate the amount of debt that can be serviced with the cash available. To do this select the debt repayment factor from the table at the bottom of the worksheet that reflects the likely repayment period and interest rate terms of a loan on this property. Multiply the net cash available (line C) by the debt repayment factor (line D) to arrive at the total debt that can be serviced (line E).

3. Compare the total debt that can be serviced (line E) with the current asking price for the farm or parcel (line F). If the asking price is lower than the debt that can be serviced, it appears you have a workable situation. Often, however, the asking price is higher than the debt that can be serviced. This amount, line G, represents the down payment that is needed. Compare this amount with the down payment amount you have available (line H). (Do not include amounts borrowed for a down payment.)

4. If there is a down payment short fall at line I, next determine the annual cash flow deficit this short fall represents (line J) by dividing line I by line D. Then estimate the annual cash flow subsidy that might be available from off-farm income and/or other parts of the business (line K). Compare lines J and K to see if the debt can be serviced with this subsidy (line L).

5. If there is still a cash flow deficit at line L, then you should check to see under what conditions this would be a workable cash flow situation. The first alternative would be to determine what reduction in the asking price would be needed to make this a workable financing situation. To do this, multiply the cash flow deficit (line L) by the debt repayment factor (line D).

The other approach would be to determine under what financing terms you would be able to pay the asking price. To do this, subtract the down payment monies available (line H) from the asking price (line F) to determine the debt to be serviced. Next, determine the cash available by adding together line C and line K. Then divide the cash available (line O) into the debt to be serviced (line N) to arrive at a debt servicing factor (line P). Then go to the debt repayment factor table at the bottom of the worksheet and match your calculated debt servicing factor with those in the table. This will indicate the financing terms-repayment period in years and interest rate - that would make for a workable debt servicing situation (line Q).

6. Of course, the above analysis is a very short-cut look at your debt servicing situation. A total farm, cash flow approach over say a 3-5 year period would be more accurate and revealing. This is particularly true if a considerable subsidy from other sources is used in the above analysis. Also, if you are considering borrowing funds to cover part of the down payment, then you need to know what this will do to your overall cash flow situation. Also, the above analysis does not take into account income tax affects of the purchase.

B. Can You Handle Risks Financially And Personally?

1. If debt servicing appears marginal under normal conditions, then your financial risks have increased substantially particularly if yields and prices are variable in your area.

2. What will this purchase do to the average per acre land costs of your operation and to your debt/asset position? If your average land costs get much above the average cash rent in your area, repayment difficulties could result.

3. Your (and your family's) attitude toward added risk and high debt as well as your ability to withstand adversity are hard to measure. But you need to consider if you can handle the stresses of added risks.

WORKSHEET 1: HOW MUCH IS THIS FARM/PARCEL WORTH TO YOU?

	CROP				Total
INCOME					
Acres of Each Crop					
Expected Yield					
Production					
Expected Price					
A. Projected Gross Income	$	$	$	$	$
EXPENSES					
Direct Costs					
Seed					
Fertilizer					
Chemicals					
Fuel & Oil					
Custom Hire					
Crop Insurance					
Operating Interest					
B. Total Direct Costs	$	$	$	$	$

Related Expenses

Machinery/equipment
- Repair . . . . . $_____
- Depreciation or Replacement . . . . . _____
- Interest on Investment . . . . . _____

Trucking & Marketing . . . . . _____

Real Estate - Taxes . . . . . _____
- Maintenance . . . . . _____

Insurance . . . . _____

Labor & Management . . . . . _____

Miscellaneous . . _____

C. Total Related Expenses . . . . . $_____

D. Projected Total Costs (B+C) . . . . . $_____

E. Projected Residual Return to Crop Land (A-D) . . . . . $_____

F. Residual Return/Crop Acre (E ÷ ___ crop acres (see above) . . . . . $_____

G. Capitalization Rate (Eq. 5% rate = 0.05) . . . . . 0.0 __

H. Projected Value Per Crop Acre (F ÷ G) . . . . . $_____

I. Sensitivity Analysis: Projected Value/Crop Acre If:

Higher Residual Earnings $_____/Crop Acre ÷ Lower Cap Rate 0.0 $_____

Lower Residual Earnings $_____/Crop Acre ÷ Higher Cap Rate 0.0 $_____

What Is The Farm/Parcel Worth To You? Is This A Good Investment?

J. Projected Value of Crop Land $_____/Acre X Crop Acres_____ . . . . . $_____

K. Adjustments For Location, Buildings, etc . . . . . $_____

L. Projected Value of Farm/Parcel (J+K) . . . . . $_____

M. Current Asking Price For Farm . . . . . $_____

N. Difference: Is This a Good Investment For You? (L-M) . . . . . $_____

WORKSHEET II - CAN YOU MEET DEBT REPAYMENT DEMANDS?

Estimate Annual Net Cash Earnings From Farm/Parcel

A. Residual returns to crop land (Worksheet I) $_____
B. Rent from buildings, pasture, etc. $_____
C. Total expected net cash earnings (A+B) $_____

Calculate The Amount Of Debt That Can Be Serviced

D. Debt repayment factor - (see table below) _____(Factor)
(expected loan terms:_____ years, _____ interest rate)
E. Total debt that can be serviced (CxD) $_____

Determine Whether Repayment Demands Can Be Met

F. Current asking price for farm/parcel $_____
G. Down payment needed (F-E) $_____
H. Down payment available (exclusive of borrowings) $_____
I. Short fall in down payment (G-H) $_____
J. Annual Cash Flow Deficit (I÷D) $_____
K. Subsidy: cash available from other sources
(other enterprises, off-farm income) $_____
L. Cash flow surplus or (deficit) (K-J) $_____

If Line L Is Negative, Under What Conditions Could Debt Payments Be Met?

M. Reduction in asking price needed to meet debt payments (LxD) $_____
Or change in finance terms needed:
N. Total debt to be serviced (F-H) $_____
O. Annual cash flow available (C+K) $_____
P. Resultant Debt repayment factor (N÷O) _____(Factor)
Q. Determine finance terms needed: years to repay _____years
(see table below) interest rate _____%

Debt Repayment Factors For Lines D and Q
(amount of debt $1 per year will cover - constant annual payments)

Repayment Period In Years	Interest Rate 6%	7%	8%	9%	10%	12%
10	$ 7.4	$ 7.0	$ 6.7	$ 6.4	$ 6.1	$ 5.7
15	9.7	9.1	8.6	8.1	7.6	6.8
20	11.5	10.6	9.8	9.1	8.5	7.5
25	12.8	11.7	10.7	9.8	9.1	7.8
30	13.8	12.4	11.3	10.3	9.4	8.1
40	15.0	13.3	11.9	10.8	9.8	8.2
forever (interest only)	16.7	14.3	12.5	11.1	10.0	8.3